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Cognitive behavioural therapy for medically unexplained physical symptoms: a randomised controlled trial

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Abstract

***Objective*—To examine the additional effect of cognitive behavioural therapy for patients with medically unexplained physical symptoms in comparison with optimised medical care.**

***Design*—Randomised controlled trial with follow up assessments six and 12 months after the baseline evaluation.**

***Setting*—General medical outpatient clinic in a university hospital.**

***Subjects*—An intervention group of 39 patients and a control group of 40 patients.**

***Interventions*—The intervention group received between six and 16 sessions of cognitive behavioural therapy. Therapeutic techniques used included identification and modification of dysfunctional automatic thoughts and behavioural experiments aimed at breaking the vicious cycles of the symptoms and their consequences. The control group received optimised medical care.**

***Main outcome measures*—The degree of change, frequency and intensity of the presenting symptoms, psychological distress, functional impairment, hypochondriacal beliefs and attitudes, and (at 12 months of follow up) number of visits to the general practitioner.**

***Results*—At six months of follow up the intervention group reported a higher recovery rate (odds ratio 0·40; 95% confidence interval 0·16 to 1·00), a lower mean intensity of the physical symptoms (difference −1·2; −2·0 to −0·3), and less impairment of sleep (odds ratio 0·38; 0·15 to 0·94) than the controls. After adjustment for coincidental baseline differences the intervention and control groups also differed with regard to frequency of the symptoms (0·32; 0·13 to 0·77), limitations in social (0·35; 0·14 to 0·85) and leisure (0·36; 0·14 to 0·93) activities, and illness behaviour (difference −2·5; −4·6 to −0·5). At 12 months of follow up the differences between the groups were largely maintained.**

***Conclusion*—Cognitive behavioural therapy seems to be a feasible and effective treatment in general medical patients with unexplained physical symptoms.**

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Introduction

Many patients are seen in clinical practice with physical symptoms for which no medical explanation can be found. In one study among 191 new referrals to a general medical outpatient clinic the prevalence of medically unexplained symptoms was 52%.[1] Compared with patients with medical diagnoses, more of those with unexplained symptoms had psychiatric disorders. The association between unexplained symptoms and psychiatric disorder suggests that psychological therapy might be effective in patients with unexplained complaints.

A general cognitive-behavioural therapy of functional somatic symptoms was described by Sharpe *et al.*[2] We assessed the additional effect of cognitive behavioural therapy for unexplained physical symptoms compared with optimised medical care. The patients studied were those identified in a general medical outpatient clinic as having persistent unexplained symptoms after medical assessment and reassurance.

Patients and methods

GENERAL OUTPATIENT POPULATION

From March 1992 till March 1993 consecutive patients referred to the general medical outpatient clinic of Leiden University Hospital were invited to take part. Only Dutch natives aged 18-64 were included. At the initial visit patients were asked to complete the general health questionnaire[3,4] and a checklist of somatic symptoms.[1]

PATIENTS WITH UNEXPLAINED PHYSICAL SYMPTOMS

After the diagnostic process was completed the physicians in charge of the patients were asked whether they had found any organic abnormalities that could be related to the presenting symptoms. Patients with unexplained symptoms were interviewed by one of us (AS or AvH). Information was gathered on sociodemographic characteristics and the main presenting symptoms. The present state examination[5,6] was used to assess psychiatric disorder.

Patients indicated the frequency of the presenting symptoms during the preceding month on a five point Likert scale ranging from 0 (not at all) to 4 (continually) and the mean and maximal intensities on numerical analogue scales ranging from 1 (none) to 10 (unbearable). Psychological distress was assessed with the hospital anxiety and depression scale.[7] Functional impairment was evaluated with the household, social interaction, work, recreation, and sleep subscales of the sickness impact profile.[8,9] In addition, patients were asked to rate limitations in these areas and total functional impairment on numerical analogue scales ranging from 1 (not affected) to 10 (could not be more affected). Hypochondriacal beliefs and attitudes were measured with the health anxiety and illness behaviour

subscales of the illness attitude scales[10] and the Whitely index.[11] The two subscales emerged from a simultaneous components analysis that we carried out among general medical outpatients, general practice patients, and subjects from the general population.

RANDOMISATION TO TREATMENT STUDY

All patients who presented with unexplained physical symptoms and had a score of 5 or more for mean intensity of the symptoms were eligible for the treatment study. Patients who scored less than 5 for mean intensity were included only if they scored 10 or more on the anxiety or depression subscale of the hospital anxiety and depression scale or had an overall functional impairment score of 5 or more. Patients with organic psychiatric disorders (for example, dementia) or with chronic alcoholism, psychosis, or suicidal ideas and those currently having psychological or psychiatric treatment were excluded. Patients who agreed to the treatment phase were randomly assigned to the treatment or control group. Randomisation was implemented in blocks of four patients and was stratified for sex and the likely presence of psychiatric disorder according to the scores on the general health questionnaire by using a cut off point of 16/17.[12]

COGNITIVE BEHAVIOURAL THERAPY

A broad cognitive behavioural therapy approach was used in view of the heterogeneous nature of the patients' problems. The main therapeutic techniques used included identification and modification of dysfunctional automatic thoughts and behavioural experiments aimed at breaking the vicious cycle of the symptoms and their consequences. The methods used were similar to those described by Salkovskis[13] and Sharpe *et al.*[2] Treatment sessions were conducted in an examination room at the general internal medical clinic and lasted one hour. Depending on the severity of the problem the number of treatment sessions varied between six and 16. The maximum duration of treatment was six months. The therapists were a physician trained in cognitive behavioural therapy (AS) and a behavioural therapist.

TREATMENT OF CONTROLS

The control group received optimised medical care. The quality of care was enhanced by basic training by three of us (AS, AvH, and HR) in the detection and management of psychiatric disorders. Training was provided in 90 minute sessions every three months.

ASSESSMENT OF OUTCOME

Follow up assessments were carried out by postal questionnaire six and 12 months after the baseline interview. The questionnaires were the same as those used at the baseline interview, except that patients were also asked to rate the improvement in their initial symptoms, as follows: "When you visited the general medical outpatient clinic about [six months/one year] ago you suffered from [presenting symptoms]. How are these symptoms now [gone/better/same/worse]?" Information on medical care utilisation was collected by asking patients whether they had visited their general practitioner or sought psychiatric or psychological help after they had visited the medical clinic. Patient information about the frequency of general practitioner consultations was compared with the frequency as recorded in their general practitioners' files. Patients who did not return the questionnaires were telephoned by an independent assessor (AvH) for information about the main outcome measures—namely, recovery; frequency and intensity of the presenting symptoms during the preceding month; total functional impairment; and medical care utilisation.

STATISTICAL ANALYSIS

Comparison of the outcome of the intervention and control groups included all patients irrespective of compliance with care. Ordered logistic regression analysis was used to analyse ordinal outcome measures.[14] In this analysis the odds ratio for an ordinal variable (that is, 1, 2, 3, 4) refers equally to 1 versus 2+3+4, 1+2 versus 3+4, and 1+2+3 versus 4. Owing to small numbers in each cell the scores on the subscales of the sickness impact profile and the number of visits to the general practitioner were divided into four categories according to their quartiles. Linear regression analysis was used for continuous outcome measures. Initial analyses were direct comparisons between the intervention and control groups. Comparisons were then adjusted for those variables on which, despite the randomisation procedure, the control and intervention groups differed at baseline. The calculations were performed with Stata, a standard package for data analysis.[15]

Results

STUDY POPULATION

Presenting symptoms were classified as medically unexplained in 229 (45%) of the 511 patients referred to the clinic. Of these, 204 (89%) agreed to complete the questionnaires. Two patients were not invited for the baseline assessment because they lived too far away. Of the remaining 202 patients, 172 (85%) agreed to be interviewed. The mean time between the initial visit to the clinic and the interview was 10·6 (SD 5·4) weeks.

Of the 172 patients who were interviewed, three were excluded from randomisation because of schizophrenia (one), chronic alcoholism (one), and psychoorganic disorder (one). A further 26 (15%) patients were already receiving psychological or psychiatric treatment and 45 (26%) had recovered from their presenting symptoms. Of the remaining 98 patients, 79 (81%) agreed to the treatment study. Patients who refused had significantly milder physical symptoms in terms of both frequency and intensity. They also reported less functional impairment. Of the patients in the treatment study, 73 were included because of the intensity of their presenting symptoms and six because of a high degree of psychological distress or functional impairment.

BASELINE CHARACTERISTICS

Thirty nine patients were assigned to the intervention group and 40 to the control group. Table I lists the baseline characteristics of patients in the two groups. Patients in the intervention group had a higher frequency of physical symptoms (odds ratio 1·67; 95% confidence interval 0·75 to 3·76) and a higher prevalence of psychiatric disorder as based on caseness in the present state examination (2·26; 0·89 to 5·77). Though the differences were not significant, we regarded them as large enough to warrant adjustment in the analyses of these two variables. The two groups were closely similar in the remaining variables.

TREATMENT

The number of treatment sessions ranged from nil to 16 (mean 11·8 (SD 4·8)). The mean duration of treatment was 21·1 (8·7) weeks. Two patients randomised to the intervention group decided not to start treatment. Three other patients in this group left treatment before the sixth session. Twenty four (65%) patients were treated by AS and 13 (35%) by the behavioural therapist. The two therapists did not differ with regard to the number of sessions, duration of treatment, or number of patients who failed to complete treatment. Neither did their patients differ in

TABLE I—*Baseline characteristics of intervention and control groups*

	Intervention group (n=39)		Controls (n=40)	
	No (%)	Mean (SD)	No (%)	Mean (SD)
General characteristics				
Female	18 (46)		21 (53)	
Age (years)		36·4 (12·4)		37·8 (12·8)
Physical symptoms				
Checklist of somatic symptoms		12·9 (6·7)		13·0 (7·5)
Frequency last month:				
Not at all	0		1 (3)	
Monthly	5 (13)		4 (10)	
Weekly	5 (13)		14 (35)	
Daily	18 (46)		11 (28)	
Continually	11 (28)		10 (25)	
Intensity last month:				
Mean		5·4 (1·6)		5·6 (1·5)
Maximum		7·0 (1·6)		7·0 (1·8)
Psychological distress				
General health questionnaire		19·8 (11·5)		20·2 (11·8)
Present state examination:				
Caseness	18 (46)		11 (28)	
Total score		10·4 (7·5)		8·0 (6·3)
Hospital anxiety and depression scale:				
Anxiety		6·7 (3·6)		7·1 (4·2)
Depression		5·5 (3·8)		5·2 (3·6)
Functional impairment				
Sickness impact profile:				
Household ⩾1	20 (51)		21 (53)	
Social ⩾3	20 (51)		19 (48)	
Work ⩾2	15 (54)		13 (45)	
Recreation ⩾2	23 (59)		20 (50)	
Sleep ⩾2	13 (33)		15 (38)	
Visual analogue scales:				
Household		3·8 (2·6)		3·6 (2·5)
Social		3·3 (2·3)		3·7 (2·6)
Work		4·8 (2·5)		5·0 (2·7)
Active recreation		4·7 (2·7)		4·6 (2·6)
Passive recreation		3·3 (2·7)		3·7 (2·3)
Sleep		5·0 (2·7)		4·9 (2·8)
Total		5·1 (2·6)		5·2 (2·3)
Health beliefs				
Illness attitude scales:				
Health anxiety		11·0 (7·9)		9·9 (8·3)
Illness behaviour		9·9 (3·6)		10·6 (3·8)
Whitely index		4·8 (2·7)		4·6 (2·3)

terms of baseline characteristics or results according to the outcome measures.

SIX MONTH FOLLOW UP

Information about the main outcome measures was obtained from 77 (97%) randomised patients. In five patients (one in the intervention group, four controls) these data were collected by telephone. Data on additional outcome measures, such as psychological distress, specific functional limitations, and hypochondriacal beliefs and attitudes, were available for 72 (91%) patients. Six (16%) controls reported that they had received psychiatric or psychological treatment elsewhere during the intervention period.

At the six month follow up all the differences between the two groups indicated a better outcome in the intervention group (table II). (Note that the contrasts between the two groups shown in table II are expressed as odds ratios for ordinal variables, such as recovery and frequency of the presenting symptoms, and as differences for continuous variables, such as mean and maximal intensity of the symptoms.) Patients in the intervention group had a significantly higher recovery rate and a lower mean intensity of the presenting symptoms. They also had significantly less impaired sleep. After adjustment for the possible effect of differences in frequency of the presenting symptoms and the presence of psychiatric disorder at baseline, patients in the intervention group also had a significantly better outcome with regard to frequency and maximal intensity of the presenting symptoms in the preceding month, social functioning, recreation, and illness behaviour.

12 MONTH FOLLOW UP

Seventy six (96%) randomised patients participated

TABLE II—*Outcome of intervention and control groups at six months of follow up, expressed as odds ratios for ordinal variables (recovery and frequency of presenting symptoms and functional impairment according to sickness impact profile) and as differences for continuous data (intensity of presenting symptoms, psychological distress, functional impairment according to numerical analogue scales, and hypochondriacal beliefs)*

	Intervention group (n=39)		Controls (n=38)		Odds ratio/difference (95% confidence interval)	Adjusted odds ratio†/ adjusted difference† (95% confidence interval)
	No (%)	Mean (SD)	No (%)	Mean (SD)		
Physical symptoms						
Recovery:						
Recovered	7 (18)		4 (11)			
Improved	25 (64)		20 (53)			
Same	7 (18)		11 (29)			
Worse	0		3 (8)		0·40 (0·16 to 1·00)	0·32 (0·12 to 0·83)
Frequency last month:						
Not at all	6 (15)		5 (13)			
Monthly	20 (51)		10 (26)			
Weekly	7 (18)		13 (34)			
Daily	4 (10)		6 (16)			
Continually	2 (5)		3 (8)		0·47 (0·20 to 1·09)	0·32 (0·13 to 0·77)
Intensity last month:						
Mean		3·1 (1·7)		4·2 (2·1)	−1·2 (−2·0 to −0·3)	−1·4 (−2·3 to −0·5)
Maximal		4·8 (2·5)		5·6 (2·7)	−0·9 (−2·1 to 0·3)	−1·4 (−2·5 to −0·3)
Psychological distress‡						
Hospital anxiety and depression scale:						
Anxiety		5·6 (3·4)		7·0 (4·3)	−1·4 (−3·2 to 0·4)	−1·8 (−3·7 to 0·0)
Depression		4·0 (3·5)		5·4 (3·7)	−1·4 (−3·1 to 0·3)	−1·7 (−3·4 to 0·0)
Functional impairment‡						
Sickness impact profile:						
Household ⩾1	16 (42)		16 (47)		0·72 (0·30 to 1·77)	0·51 (0·20 to 1·35)
Social ⩾3	12 (32)		17 (50)		0·45 (0·19 to 1·06)	0·35 (0·14 to 0·85)
Work ⩾2	9 (31)		7 (27)		0·85 (0·32 to 2·25)	0·58 (0·20 to 1·62)
Recreation ⩾2	11 (29)		17 (50)		0·62 (0·26 to 1·46)	0·36 (0·14 to 0·93)
Sleep ⩾2	4 (11)		8 (24)		0·38 (0·15 to 0·94)	0·24 (0·09 to 0·65)
Numerical analogue scales:						
Household		2·7 (2·1)		3·3 (2·3)	−0·6 (−1·6 to 0·4)	−0·9 (−2·0 to 0·1)
Social		2·6 (1·9)		3·3 (2·0)	−0·7 (−1·6 to 0·2)	−1·0 (−2·0 to 0·0)
Work		3·3 (2·5)		3·6 (2·3)	−0·3 (−1·6 to 1·0)	−0·6 (−1·9 to 0·7)
Active recreation		3·4 (2·4)		3·9 (2·5)	−0·5 (−1·7 to 0·6)	−0·8 (−2·0 to 0·4)
Passive recreation		2·7 (2·2)		3·2 (2·3)	−0·4 (−1·5 to 0·6)	−0·7 (−1·7 to 0·4)
Sleep		3·0 (2·4)		4·1 (2·7)	−1·1 (−2·3 to 0·1)	−1·4 (−2·6 to −0·3)
Total		3·6 (2·3)		4·2 (2·4)	−0·6 (−1·7 to 0·5)	−0·9 (−1·9 to 0·2)
Hypochondriacal beliefs‡						
Illness attitude scales:						
Health anxiety		9·8 (7·5)		10·3 (9·4)	−0·5 (−4·5 to 3·6)	−1·2 (−5·5 to 3·2)
Illness behaviour		7·2 (3·5)		9·5 (4·9)	−2·2 (−4·2 to −0·2)	−2·5 (−4·6 to −0·5)
Whitely index		3·3 (2·3)		3·6 (2·6)	−0·4 (−1·5 to 0·8)	−0·8 (−2·0 to 0·3)

†Adjusted for frequency of presenting symptoms and presence of psychiatric disorder at baseline.
‡Outcome in terms of psychological distress, functional impairment (except total functional impairment) and hypochondriacal beliefs was recorded for 38 patients in intervention group and 34 in control group.

TABLE III—*Outcome of intervention and control groups at 12 months of follow up expressed as odds ratios for ordinal variables (recovery and frequency of presenting symptoms, visits to general practitioner, and functional impairment according to sickness impact profile) and differences for continuous data (intensity of presenting symptoms, psychological distress, functional impairment according to numerical analogue scales, and hypochondrial beliefs)*

	Intervention group (n=37)		Controls (n=39)		Odds ratio/difference (95% confidence interval)	Adjusted odds ratio†/ adjusted difference† (95% confidence interval)
	No (%)	Mean (SD)	No (%)	Mean (SD)		
Physical symptoms						
Recovery:						
Recovered	8 (22)		5 (13)			
Improved	19 (51)		18 (46)			
Same	7 (19)		9 (23)			
Worse	3 (8)		6 (15)		0·55 (0·23 to 1·29)	0·43 (0·17 to 1·08)
Frequency last month:						
Not at all	8 (22)		6 (15)			
Monthly	11 (30)		9 (23)			
Weekly	10 (27)		11 (28)			
Daily	4 (11)		8 (21)			
Continually	3 (8)		5 (13)		0·56 (0·25 to 1·26)	0·35 (0·15 to 0·84)
Intensity last month:						
Mean		3·7 (2·2)		4·7 (2·4)	−1·0 (−2·0 to 0·0)	−1·2 (−2·3 to −0·2)
Maximal		4·8 (2·6)		5·6 (2·7)	−0·8 (−2·0 to 0·5)	−1·2 (−2·4 to 0·0)
Visits to general practitioner						
0	15 (41)		16 (41)			
1	5 (14)		6 (15)			
2 or 3	10 (27)		14 (36)			
⩾4	7 (19)		3 (8)		1·24 (0·54 to 2·83)	0·94 (0·39 to 2·25)
Psychological distress‡						
Hospital anxiety and depression scale:						
Anxiety		6·5 (3·6)		6·9 (4·6)	−0·3 (−2·3 to 1·6)	−1·1 (−3·0 to 0·7)
Depression		4·2 (3·6)		4·8 (3·2)	−0·6 (−2·2 to 1·0)	−1·1 (−2·7 to 0·6)
Functional impairment‡						
Sickness impact profile:						
Household ⩾1	15 (43)		18 (51)		0·75 (0·31 to 1·84)	0·46 (0·17 to 1·25)
Social ⩾3	13 (37)		19 (56)		0·53 (0·22 to 1·26)	0·32 (0·12 to 0·82)
Work ⩾2	10 (34)		8 (28)		1·57 (0·58 to 4·26)	1·40 (0·46 to 4·21)
Recreation ⩾2	12 (34)		15 (46)		0·60 (0·26 to 1·42)	0·40 (0·16 to 1·02)
Sleep ⩾2	3 (9)		9 (26)		0·42 (0·17 to 1·03)	0·30 (0·11 to 0·78)
Numerical analogue scales:						
Household		3·0 (2·1)		3·3 (2·4)	−0·4 (−1·5 to 0·7)	−0·7 (−1·8 to 0·3)
Social		2·9 (2·3)		3·2 (2·4)	−0·4 (−1·6 to 0·8)	−0·7 (−1·9 to 0·5)
Work		3·3 (2·4)		3·6 (2·7)	−0·3 (−1·6 to 1·1)	−0·8 (−2·0 to 0·5)
Active recreation		3·7 (2·6)		4·3 (2·6)	−0·6 (−1·8 to 0·6)	−1·0 (−2·2 to 0·2)
Passive recreaion		2·9 (2·4)		3·3 (2·4)	−0·5 (−1·6 to 0·6)	−0·8 (−1·9 to 0·4)
Sleep		3·5 (2·5)		4·4 (2·8)	−0·9 (−2·2 to 0·4)	−1·4 (−2·6 to −0·1)
Total		3·9 (2·5)		4·4 (2·7)	−0·5 (−1·7 to 0·7)	−0·9 (−2·1 to 0·2)
Hypochondriacal beliefs‡						
Illness attitude scales:						
Health anxiety		8·3 (7·3)		10·0 (8·5)	−1·7 (−5·6 to 2·1)	−2·4 (−6·3 to 1·6)
Illness behaviour		7·1 (4·0)		8·7 (4·7)	−1·6 (−3·8 to 0·6)	−2·2 (−4·4 to 0·0)
Whitely index		2·9 (2·4)		3·5 (2·5)	−0·7 (−1·8 to 0·5)	−1·0 (−2·2 to 0·2)

†Adjusted for frequency of presenting symptoms and presence of psychiatric disorder at baseline.
‡Outcome in terms of psychological distress, functional impairment (except total functional impairment), and hypochondriacal beliefs was recorded for 35 patients in intervention group and 35 in control group.

in the 12 month follow up (table III). Seventy returned the questionnaires and six (two in the intervention group, four controls) were interviewed by telephone. Owing to practical constraints three interviews were carried out by an interviewer who was aware of the randomisation. Non-participants were one patient in the intervention group and two controls.

Results at 12 months were better in the intervention group (table III). With respect to most variables, the contrast between the two groups was slightly less than at six months and the variability of the data had increased. After adjusting for frequency of the presenting symptoms and presence of psychiatric disorder at baseline, the intervention group still had a significantly lower frequency and mean intensity of the presenting symptoms than the controls. Functional impairment in terms of social interactions and sleep and illness behaviour also remained less in patients in the intervention group after adjusting for possible confounding factors.

Fifty nine (84%) of the 70 patients who returned the questionnaires at 12 months consented to our approaching their general practitioners for the number of visits. The observed agreement between the patients and the general practitioners was 86% with a weighted κ of 0·66. This degree of agreement is substantial.[16] The intervention and control groups did not differ in the number of visits to the general practitioner.

Discussion

This study indicates that cognitive behavioural therapy is both feasible and more effective than optimised medical care in general medical outpatients with persistent unexplained symptoms. That the study was introduced by the attending physician and the treatment sessions took place in the general medical outpatient clinic were considered to be important in preventing patients from feeling that psychological referral represented dismissal by the physicians.

Patients randomised to the two treatment groups had heterogeneous symptoms and probably also differed in their susceptibility to treatment. Possibly also some of the patients whose symptoms were classified as unexplained will develop somatic illnesses in the future. As cognitive behavioural therapy is not expected to be equally effective in these different types of patients, the results of the study are very satisfactory.

The extent to which therapy actually reached patients in the treatment group is another important factor when assessing effect. Two patients did not start treatment at all after being randomised to the intervention group and three stopped treatment before the sixth session. As statistical comparisons between the intervention and control groups were on an intention to treat basis, they included all the patients; this also might have resulted in underestimating the effects of cognitive behavioural therapy.

Despite the strict inclusion criteria with regard to physical symptoms, psychological distress, and functional impairment the recovery rate in the control group was fairly high. This might have been influenced by our efforts to enhance the quality of medical care by providing basic psychiatric training for the physicians. The assessment interview and explanation of the

Key messages

- Around half of patients presenting to general medical outpatient clinics have no detectable organic abnormalities that could account for their symptoms
- If psychological therapy is offered in the medical clinic most patients with unexplained physical symptoms will accept
- Cognitive behavioural therapy is feasible and effective in general medical outpatients with unexplained symptoms
- Basic principles of cognitive behavioural therapy, such as the recognition of the patients' attributions of their symptoms and effective reassurance, could help a large proportion of patients with unexplained symptoms
- Differentiation between patients whose symptoms will probably resolve in due course and those who need more specialised treatment is important

treatment rationale might also have had some therapeutic effect. In addition, several patients in the control group sought psychiatric or psychological help elsewhere. The fairly high recovery rate in the controls limited the extent to which any additional benefits of the psychological intervention could be shown.

The dilution of treatment effect because of the variability of response of patients to treatment, the use of an intention to treat method of analysis, and the recovery rate in the controls means that the results provide impressive support for the efficacy of cognitive behavioural therapy in patients with unexplained physical symptoms. However, it also makes clear that the efficacy of treatment depends to a great extent on the selection of patients. Differentiation between patients whose symptoms will probably resolve in due course and those whose symptoms will persist without treatment is very important. Basic principles of cognitive behavioural therapy, such as the recognition of the patients' attributions of their symptoms and effective reassurance, could probably be incorporated in routine clinical practice. This might help a large proportion of patients presenting with unexplained physical symptoms. The application of more intensive psychological treatment should be limited to patients in whom there is a high chance of their symptoms persisting.

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Success of cardiopulmonary resuscitation after heart attack in hospital and outside hospital

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Abstract

***Objectives*—To determine factors associated with cardiopulmonary resuscitation being attempted after cardiac arrest from myocardial infarction, in or outside hospital, and estimate short term and long term survival rates.**

***Design*—Descriptive cross sectional and cohort study.**

***Setting*—Community based register of all suspected heart attacks and sudden cardiac deaths in Lower Hunter region of New South Wales, Australia.**

***Subjects*—4924 men and women aged 25–69.**

***Main outcome measures*—Rates of attempted cardiopulmonary resuscitation and survival after successful resuscitation.**

***Results*—Cardiopulmonary resuscitation was attempted in 41% of cases of cardiac arrest after myocardial infarction outside hospital and 63% of cases in hospital. Survival rates at 28 days were 12% and 39% respectively. Among the survivors, although 41% had another myocardial infarction (or coronary death), 81% of both groups were still alive two years later. Younger and better educated people were more likely to receive cardiopulmonary resuscitation in either setting, and being married predicted cardiopulmonary resuscitation being attempted outside hospital. Younger age predicted better survival rates after attempted resuscitation in hospital.**

***Conclusions*—The reasons for better education to predict cardiopulmonary resuscitation being attempted need explanation. The higher survival rate after cardiopulmonary resuscitation in hospital compared with outside hospital and the good long term prognosis for survivors in both settings suggest that attempts to improve success of cardiopulmonary resuscitation outside hospital may be worth while.**

Introduction

A large variation in survival rates has been reported for people who receive cardiopulmonary resuscitation after cardiac arrest outside hospital, with poorer prognosis among elderly patients and those who have not